NORTHEASTERN GREAT BASIN STANDARDS AND GUIDELINES ASSESSMENT
FROST CREEK ALLOTMENT

2009 DRAFT DETERMINATION
Elko District, Tuscarora Field Office
June 2009

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Appendix A - Frost Creek Allotment Data Summaries

Frost Creek Allotment Monitoring and Actual Use Data 1987- 2008								Livestock Carrying Capacity	
North Zaga Pasture - Key Species: Crested wheatgrass (AGCR). Utilization Objectives: 65% and 50%								**Pasture Acres=1,939**	
Year	**Cattle Actual Use AUMS**	**Period of Use**	**KA UTLZ%**	**Date Recorded**	**UPM**	**UPM Result**	**Date Mapped**	**Estimated Carrrying Capacity AUMs @ 65% Target Use Level**	**Estimated Carrrying Capacity AUMs @ 50% Target Use Level**
1987	420	6/7-6/24,10/19-11/23	38	10/14	yes	Light-324 acres Moderate-1596 acres Heavy-19 acres	no date recorded	718	553
1988	260	6/2-7/9	60	10/14	*	*	n/a	282	217
1989	55	6/30-7/6	*	n/a	*	*	n/a	*	*
1990	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1991	305	6/12-7/15	40	7/17	*	*	n/a	496	381
1992	**745**[1]	6/4-6/28,7/1-8/18	37	8/27	yes	Light-957 acres Moderate-682 acres Heavy-300 acres	no date recorded	**1309**[2]	**1007**[2]
1993	164	6/15-7/9	21	7/15	*	*	n/a	508	390
1994	289	6/6-7/5	11	6/9	*	*	n/a	**1708**[3]	**1314**[3]
1995	237	6/29-8/15	*	n/a	*	*	n/a	*	*

1996	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1997	454	4/26 - 6/28	63	10/1	*	*	n/a	468	360
1998	336	5/20-6/27	27	11/19	*	*	n/a	809	622
1999	325	5/25-6/29	*	n/a	*	*	n/a	*	*
2000	380	5/21-7/1	40	12/1	*	*	n/a	618	475
2001	190	6/13-7/3	*	n/a	*	*	n/a	*	*
2002	*	*	*	n/a	*	*	n/a	*	*
2003	575	10/27-12/15	*	n/a	*	*	n/a	*	*
2004	276	7/25-10/12	*	n/a	*	*	n/a	*	*
2005	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2006	265	4/3-8/19	*	n/a	*	*	n/a	*	*
2007	471	4/19-6/24	*	n/a	*	*	n/a	*	*
2008	214	5/25-6/24	59	8/12	yes	Light-1416 acres Moderate-385 acres Heavy-138 acres	8/12	236	181
AVG	**307**		**40**					**517**	**397**

1- Above average actual use is not an accurate representation of how the pasture is normally used. This number was not used in the average
2-High actual use portrayed a higher carrying capacity. This number was not used to calculate the average carrying capacity.
3-Utilization was measured three days into the use period. The low utilization level measured is not representative of the entire use period; therefore, the number was not used to develop the carrying capacity for the pasture and it was not included in the average.

South Zaga Pasture - Key Species: Crested wheatgrass (AGCR). Utilization Objective: 65% and 50%								Pasture Acres=1,592	
Year	**Cattle Actual Use AUMS**	**Period of Use**	**KA UTLZ%**	**Date Recorded**	**UPM**	**UPM Result**	**Date Mapped**	**Estimated Carrrying Capacity AUMs @ 65% Target Use Level**	**Estimated Carrrying Capacity AUMs @ 50% Target Use Level**
1987	**47**	6/3-6/7	30	10/14	yes	Light-1400 acres Moderate-192 acres	no date recorded	**102**	**78**
1988	177	5/7-6/2, 5/19-6/2	38	10/14	*	*	n/a	303	233
1989	292	5/25-6/30	*	n/a	*	*	n/a	*	*
1990	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1991	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1992	184	5/15-5/21,5/22-6/3	29	8/27	yes	Light-1037 acres Moderate-555 acres	no date recorded	412	317
1993	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1994	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1995	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1996	462	5/10-7/2	49	11/6	*	*	n/a	613	471
1997	341	10/25-1/15	*	n/a	*	*	n/a	*	*
1998	215	10/26-12/7	*	n/a	*	*	n/a	*	*

1999	335	10/21-12/27	*	n/a	*	*	n/a	*	*
2000	243	10/20-12/28	49	12/1	*	*	n/a	322	248
2001	205	10/15-12/3	*	n/a	*	*	n/a	*	*
2002	*	*	*	n/a	*	*	n/a	*	*
2003	145	8/20-10/7	*	n/a	*	*	n/a	*	*
2004	75	10/22-12/11	*	n/a	*	*	n/a	*	*
2005	214	10/25-12/15	*	n/a	*	*	n/a	*	*
2006	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2007	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2008	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AVG	**241**		**39**					**413**	**317**

1- Above average actual use is not an accurate representation of how the pasture is normally used. This number was not used in the average.
2-High actual use portrayed a higher carrying capacity. This number was not used to calculate the average carrying capacity.
3-Utilization was measured three days into the use period. The low utilization level measured is not representative of the entire use period; therefore, the number was not used to develop the carrying capacity for the pasture and it was not included in the average.

Frost Canyon Pasture - Key Species: Crested wheatgrass (AGCR). Utilization Objective: 65% and 50%								**Pasture Acres=1,456**	
Year	**Cattle Actual Use AUMS**	**Period of Use**	**KA UTLZ%**	**Date Recorded**	**UPM**	**UPM Result**	**Date Mapped**	**Estimated Carrrying Capacity AUMs @ 65% Target Use Level**	**Estimated Carrrying Capacity AUMs @ 50% Target Use Level**
1987	123	6/5-6/10,7/27-8/22	58	10/14	yes	Moderate-1278 acres Heavy-178 acres	no date recorded	138	106
1988	290	5/8-6/11,5/19-6/11,6/12-9/24	62	10/14	*	*	n/a	304	234
1989	427	11/2-12/21	16	12/19	*	*	n/a	**1735[3]**	**1334[3]**
1990	413	5/11-6/22,5/11-6/25	*	n/a	*	*	n/a	*	*
1991	133	4/23-8/20,6/12-8/20	*	n/a	*	*	n/a	*	*
1992	331	4/6-5/18	20	6/22	yes	Light-1226 acres Moderate-230 acres	no date recorded	**1076[4]**	**828[4]**
1993	**38[1]**	9/22-9/27	15	10/13	*	*	n/a	**165[2]**	**127[2]**
1994	361	4/15-7/12	22	10/14	*	*	n/a	1067	820
1995	354	4/28-6/19	*	n/a	*	*	n/a	*	*
1996	77	4/9-5/14	9.5	6/4	*	*	n/a	527	405
1997	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a

1998	301	4/15-5/19	12	11/19	*	*	n/a	**1630[5]**	**1254[5]**
1999	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2000	416	4/5-5/20	*	n/a	*	*	n/a	*	*
2001	152	5/15 - 10/1	*	n/a	*	*	n/a	*	*
2002	*	*	*	n/a	*	*	n/a	*	*
2003	308	6/30-8/20	*	n/a	*	*	n/a	*	*
2004	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2005	194	5/24-6/15	*	n/a	*	*	n/a	*	*
2006	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2007	264	4/15-5/15	*	n/a	*	*	n/a	*	*
2008	375	4/17 - 7/1	36	9/8	yes	Light-1395 acres Moderate-42 acres Heavy-19 acres	9/8	677	521
AVG	**296**		**28**					**542**	**417**

1- Low actual use is not a accurate representation of how the pasture is normally used. These numbers were not used in the average.
2-Below average actual use yielded a below average carrying capacity. These numbers were not used to develop the carrying capacity and were not included in the average.
3-High actual use resulted in lower utilization levels ;therefore, the result was a high carrying capacity. This is not consistent and the number was not used in developing the estimated carrying capacity.
4-The use period ended on 5/18, but the utilization was not measured until 6/22. The utilization measurement did not take into account the re-growth period from May through June. If utilization was measured directly after livestock were removed from the pasture utilization levels observed may have been higher which in turn would yield a lower more conservative carrying capacity estimate. This number was not used to develop the carrying capacity and was not included in the average.
5- Utilization measurement was taken in November which was a long stretch of time after the livestock were taken out of the pasture. Again, the utilization measurement did not take into account the re-growth period from April through May. This level of actual use should yield a much higher utilization level. This number was not used to develop the carrying capacity and was not included in the average.

Corral Canyon Pasture - Key Species: Crested wheatgrass (AGCR). Utilization Objective: 65% and 50%								**Pasture Acres=924**	
Year	**Cattle Actual Use AUMS**	**Period of Use**	**KA UTLZ%**	**Date Recorded**	**UPM**	**UPM Result**	**Date Mapped**	**Estimated Carrrying Capacity AUMs @ 65% Target Use Level**	**Estimated Carrrying Capacity AUMs @ 50% Target Use Level**
1987	471	4/14-7/27	50	10/14	yes	Light-384 acres Moderate-540 acres	no date recorded	612	471
1988	293	4/5-9/10	36	10/14	*	*	n/a	529	407
1989	72	4/12-6/2	66	no date recorded	*	*	n/a	71	55
1990	262	4/10-8/25,6/22-8/25	*	n/a	*	*	n/a	*	*
1991	158	4/8-9/23,5/21-9/23	34	11/12	*	*	n/a	302	232
1992	266	4/3-7/30	36	9/15	yes	Light-542 acres Moderate-382 acres	no date recorded	480	369
1993	490	4/15-9/1	24	9/7	*	*	n/a	1327	1021
1994	342	5/13-8/31	23	10/4	*	*	n/a	967	743
1995	367	4/25-9/20	*	n/a	*	*	n/a	*	*
1996	491	4/3-9/15	*	n/a	*	*	n/a	*	*
1997	584	4/5-10/30	51	10/30	*	*	n/a	744	573
1998	457	4/6-9/15	27	11/19	*	*	n/a	1100	846
1999	469	5/30-9/27	*	n/a	*	*	n/a	*	*

2000	352	5/16-9/15	*	n/a	*	*	n/a	*	*
2001	381	4/10-9/1	*	n/a	*	*	n/a	*	*
2002	*	*	*	n/a	*	*	n/a	*	*
2003	349	5/11-9/5	*	n/a	*	*	n/a	*	*
2004	129	4/15-7/25	*	n/a	*	*	n/a	*	*
2005	401	8/25-12/15	*	n/a	*	*	n/a	*	*
2006	65	8/20-9/22	*	n/a	*	*	n/a	*	*
2007	493	4/8-10/15	*	n/a	*	*	n/a	*	*
2008	244	4/12-9/1	25	9/15	yes	Light-483 acres Moderate-441 acres	9/15	634	488
AVG	**340**		**37**					**677**	**521**

Jiggs Flat Pasture - Key Species: Indian ricegrass(ORHY), Thurber's needlegrass(STTH2). Utilization Objective: 50%								Pasture Acres=2,316	
Year	**Cattle Actual Use AUMS**	**Period of Use**	**KA UTLZ%**	**Date Recorded**	**UPM**	**UPM Result**	**Date Mapped**	**Estimated Carrrying Capacity AUMs @ 50% Target Use Level**	**n/a**
1987	440	4/13-5/12	46 (STTH2) 38 (ORHY)	10/14	yes	Light-1913 acres Moderate-403 acres	no date recorded	478	n/a
1988	243	4/15-5/7	70 (STTH2)	5/20	*	*	n/a	174	n/a
1989	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1990	211	4/18-5/11,4/23-5/11	*	*	*	*	n/a	*	n/a
1991	131	4/19-5/2	40 (STTH2) **24[1] (POSE)**	11/12	*	*	n/a	164	n/a
1992	278	4/14-5/14	48 (STTH2)	7/9	yes	Light-1704 acres Moderate-526 acres Heavy-86 acres	no date recorded	290	n/a
1993	147	4/19-5/11	42 (STTH2)	5/21	*	*	n/a	175	n/a
1994	**36[2]**	5/1-5/4	*	n/a	*	*	n/a	*	n/a
1995	58	6/29-7/5	*	n/a	*	*	n/a	*	n/a
1996	137	6/17-7/2	22 (ORHY)	11/6	*	*	n/a	311	n/a
1997	78	4/15-4/25	27 (ORHY) **28.5[1] (POSE)**	10/1	*	*	n/a	144	n/a
1998	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a

1999	272	4/15-5/30	*	n/a	*	*	n/a	*	n/a
2000	117	4/5-5/15	27 (STTH2)	12/1	*	*	n/a	217	n/a
2001	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2002	*	*	*	n/a	*	*	n/a	*	n/a
2003	267	4/17-5/15	*	n/a	*	*	n/a	*	n/a
2004	272	4/15-5/15	*	n/a	*	*	n/a	*	n/a
2005	262	4/23-5/23	*	n/a	*	*	n/a	*	n/a
2006	233	4/22-5/20	*	n/a	*	*	n/a	*	n/a
2007	**28**	4/16-4/19	*	n/a	*	*	n/a	*	n/a
2008	138	5/5-5/24	**4[1]** (ORHY) **93[1] (POSE)**	8/12	yes	Light-2105 acres Moderate-163 acres Heavy-48 acres	8/12	**2243[3]**	n/a
AVG	**205**		**36**					**244**	n/a

1 - Sandberg's bluegrass (POSE) was not identified as a key species and it was not used to calculate carrying capacity AUMs. POSE reaches seed dissemination much earlier (May in some cases) than other desirable perennial grasses and generally does not meet all the nutritional requirements for the livestock. Utilization of POSE is not a good indicator of what level of use is being received across the allotment. The high utilization measured on POSE could be due to the rabbit use. Rabbit use was noted on the 2008 form to be somewhat significant. Low utilization on Indian ricegrass (ORHY) is likely due to re-growth after early grazing use.

2 - Low actual use is not a accurate representation of how the pasture is normally used. This number was not used in the average.

3 - 2008 was a below average moisture year and most cases this level of use would result in much higher utilization levels measured. This number was not included in the average.

*Note – A reduction in AUMs is recommended for this pasture. Based on 2005 production data, the current ecological status is Early-Seral. This is due to the pasture transitioning from a grass dominated plant community to a shrub dominated community. Over time less desirable grasses such as Sandberg's bluegrass and cheatgrass have become more dominant. More desirable mid to late seral grasses that normally dominate the plant community and are common for the ecological site are now limited. This ecological condition is not likely to improve unless vegetation manipulation methods are proposed.

Riley Pasture - Key Species: Crested wheatgrass (AGCR). Utilization Objective: 65% and 50%								**Pasture Acres=1,916**	
Year	**Cattle Actual Use AUMS**	**Period of Use**	**KA UTLZ%**	**Date Recorded**	**UPM**	**UPM Result**	**Date Mapped**	**Estimated Carrrying Capacity AUMs @ 65% Target Use Level**	**Estimated Carrrying Capacity AUMs @ 50% Target Use Level**
1987	**728**[3]	4/14-5/14,8/22-10/13,10/27-11/23	56	10/14	yes	Moderate-1744 acres Heavy-172 acres	no date recorded	**845**[3]	**650**[3]
1988	102	10/13-10/20	28	10/14	*	*	n/a	**237**[1]	**182**[1]
1989	308	4/16-5/24	40	5/26	*	*	n/a	501	385
1990	*	*	*	n/a	*	*	n/a	*	*
1991	471	4/25-6/12,5/20-6/12	46	7/2	*	*	n/a	666	512
1992	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	
1993	196	5/11-6/9	41	6/23	*	*	n/a	311	239
1994	316	5/4-6/6	29	6/21	*	*	n/a	708	545
1995	269	5/22-6/29	*	n/a	*	*	n/a	*	*
1996	265	4/10-5/10	25	6/4	*	*	n/a	689	530
1997	348	4/18-6/19	57	10/1	*	*	n/a	397	305
1998	194	4/6-6/11	6	11/19	*	*	n/a	**2102**[2]	**1617**[2]
1999	353	4/17-5/25	*	n/a	*	*	n/a	*	*

2000	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2001	398	4/30-6/12	*	n/a	*	*	n/a	*	*
2002	*	*	*	n/a	*	*	n/a	*	*
2003	423	5/16-6/30	*	n/a	*	*	n/a	*	*
2004	272	5/16-6/15	*	n/a	*	*	n/a	*	*
2005	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2006	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2007	326	4/15-6/15	*	n/a	*	*	n/a	*	*
2008	158	10/1 - 10/30	50	11/19	yes	Slight-42 acres Light-1658 acres Moderate-133 acres Heavy-80 acres Severe-3 acres	11/19	205	158
AVG	**293**		**38**					**497**	**382**

1-Utilization was measured two days into the use period. The utilization measured is not representative of the entire use period; therefore, the number was not used to develop the carrying capacity for the pasture and it was not included in the average.
2- Utilization was not measured directly after the livestock were taken-off the pasture. If utilization was measured at least two weeks after the end of the use period it would have likely been much higher. 1998 was an extremely wet year and re-growth after grazing was most likely high ; as a result, a good estimate of utilization would be hard to obtain. The number was not used to develop the carrying capacity and it was not included in the average.
3-Above average actual use AUMs resulted in a higher carrying capacity. These numbers were not figured into the averages.

Brown Pasture - Key Species: Crested wheatgrass (AGCR). Utilization Objective: 65% and 50%								**Pasture Acres=1,004**	
Year	**Cattle Actual Use AUMS**	**Period of Use**	**KA UTLZ%**	**Date Recorded**	**UPM**	**UPM Result**	**Date Mapped**	**Estimated Carrrying Capacity AUMs @ 65% Target Use Level**	**Estimated Carrrying Capacity AUMs @ 50% Target Use Level**
1987	**573**[2]	5/14-6/23,8/26-10/13	52	10/14	yes	Moderate-707 Heavy-297	no date recorded	**716**[1]	**551**[1]
1988	525	9/24-10/7,10/20-11/24	50	10/14	*	*	n/a	683	525
1989	170	6/2-8/21	38	5/26	*	*	n/a	**291**[4]	**224**[4]
1990	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	
1991	299	11/5-1/8	no data	n/a	*	*	n/a	*	
1992	216	8/19-9/20	40	10/27	yes	Light-682 Moderate-322	no date recorded	351	270
1993	329	5/5-9/18	21	9/22	*	*	n/a	**1018**[5]	**783**[5]
1994	307	7/12-9/12	25	10/4	*	*	n/a	798	614
1995	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	
1996	**15**[3]	5/14-5/21	2	6/4	*	*	n/a	**488**[3]	**375**[3]
1997	403	6/20-9/1	36	10/30	*	*	n/a	728	560
1998	278	6/12-9/15	3	11/19	*	*	n/a	**6023**[4]	**4633**[4]
1999	n/a	rest	n/a	n/a	n/a	*	n/a	n/a	n/a

2000	324	4/15-10/1	*	n/a	*	*	n/a	*	*
2001	421	4/22-7/24	*	n/a	*	*	n/a	*	*
2002	*	*	*	n/a	*	*	n/a	*	*
2003	215	5/16-9/3	*	n/a	*	*	n/a	*	*
2004	316	11/10-12/15	*	n/a	*	*	n/a	*	*
2005	380	5/1-8/15	*	n/a	*	*	n/a	*	*
2006	n/a	rest	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2007	81	5/25-6/15	*	n/a	*	*	n/a	*	*
2008	306	7/2 - 9/1	62	9/17	yes	Light-407 acres Moderate-437 acres Heavy-160 acres	9/17	321	247
AVG	**305**		**33**					**576**	**443**

1-Above average actual use portrayed a higher carrying capacity. This number was not used to calculate the average carrying capacity.
2-Above average actual use does not portray how the pasture is normally used. This number was not used to develop the carrying capacity and was not included in the average.
3-Below average actual use does not portray how the pasture is normally used. 2 percent utilization measured is not representative of how the pasture is normally utilized ;therefore, These numbers were not used to develop the carrying capacity and were not included in the average.
4-278 actual use AUMs should result in a much higher utilization level than 3 percent. The low utilization level recorded resulted in a very high carrying capacity. This number was not used to calculate the average carrying capacity.
5-1993 was a dry year compared to the median year. Actual use was above average and utilization recorded was low. This is inconsistent; during a dry year if actual use is recorded above average utilization should be higher.

Appendix B - Frost Creek Allotment Carrying Capacity

The tables in Appendix A display all utilization data available by pasture for the Frost Creek Allotment as well as the actual use data for those years where utilization data was collected from 1987-2008. As outlined in the 1987 Elko Resource Management Plan-Record of Decision, the utilization objectives for perennial native grasses are: (1) do not exceed 50% utilization during the growing season and (2) do not exceed 55% in any given year. A 50% utilization objective was used on native grasses in the Jiggs Flat Pasture to calculate the carrying capacity. Carrying capacity estimates show a proposed increase to current active preference on the crested wheatgrass pastures and a reduction is proposed for the native Jiggs Flat Pasture (See Appendix A and subsection 9.1.5 of the standards and guidelines assessment). The carrying capacity on the seeded pastures was calculated based on two different utilization objectives which were 65% and 50% of current year's growth. Please refer to the carrying capacity formula below:

Actual use and utilization data were compared to the desired utilization levels/objectives (50% or 65%) which yielded the estimated carrying capacity (X value).

$$\frac{\text{Actual Use}}{\text{Actual utilization}} = \frac{\text{x}}{\text{Desired utilization or utilization objective}}$$

X = Estimated carrying capacity

Rationale:

The Elko Resource Management Plan (RMP) outlined a use restriction of 50% for the growing season (spring through summer) for native species. According to scientific literature, monitoring, and field observations, the desired utilization level for crested wheatgrass has commonly been identified as 65% for the Elko District (Horton and Weissert 1970). Crested wheatgrass is a non-native introduced species that withstands repeated spring grazing and higher use levels than most native grass species while still retaining high vigor and production. However, in order to provide more cover and forage for various wildlife species that utilize the seedings, carrying capacities were also calculated based on a utilization objective (target level) of 50% use of current year's growth. Crop-year precipitation (Sept through the following June) for the years 1987 -2008 was also compiled. Crop year precipitation is the driving factor that affects forage production. Forage production varies between dry (below median precipitation years) cycles and wet (above median precipitation years) cycles. During the years of this carrying capacity evaluation, a dry cycle occurred from 1988 through 1992, with some recovery occurring in 1993, then a wet cycle from 1994 through 1998, followed by a drying cycle beginning in 1999. Crop year precipitation was not compiled or analyzed for 2000 through 2007 due to the fact that there was no utilization data available to develop a carrying capacity estimate. However, actual use and utilization data was available This information was then compared to the years included in the calculated carrying capacity to determine if there was a reasonable balance between low production years, high production years, and normal production years to represent an average year. In this case, we believe that the years included in the calculated carrying capacities provided a reasonable balance of years from which to arrive at a carrying

capacity for an average year. Other factors used to determine appropriate stocking levels are described in section 7.1.1 (Livestock Carrying Capacity) of the standards and guidelines assessment.

Example of the Three-Part Method to Arrive at the Estimated Carrying Capacities

Please see the example below of how the three-part method was used to develop the carrying capacity estimates. Figure 1 below displays the results of this three-part method.

Part one: A recent carrying capacity estimate on a crested wheatgrass seeding in an allotment to the north of Frost Creek Allotment yielded an average of 5 acres per one (1) AUM for a pasture stocking rate. This ratio (5 acres/1 AUM) was then applied to the seeded pastures for the Frost Creek Allotment. The next step entailed dividing the pasture acres by five. In the case of the native pasture a ratio of 15 acres/1 AUM was used in the formula.

Ex: Pasture Acres (1939) = 388 AUMs(seeded) *Pasture Acres (2316)= 154 AUMs(native)*
Mean Ratio (5 acres/AUM)) *Mean Ratio (15 ac./AUM)*

Part two: This includes using the average actual use for each of the pastures for the years 1987-2008 (refer to tables in Appendix A).

Ex: average actual use AUMs from 1987-2008 for the North Zaga Pasture were 307AUMs.

Part three: This part uses the average calculated carrying capacity for each pasture using actual livestock use and the levels of forage utilization. The estimated carrying capacity was calculated at the 50% and 65% target use levels for the crested wheatgrass pastures and at the 50% target level for the native (Jiggs Flat) pasture. The estimated carrying capacities in AUMs for each pasture are included in Appendix A.

Ex: the mean ($\bar{x}$) estimated carrying capacity on the North Zaga Pasture for the years 1987-2008 was 517 AUMs at the 65% target use level and 397 AUMs at the 50% target use level.

Parts one, two, and three were then averaged to develop a conservative carrying capacity estimate.

Ex: the mean ($\bar{x}$) of part one (388 AUMs), part two(307AUMs), and part three (517 AUMs at the 65% target use level and 397 AUMs at the 50% target use level) were averaged to equal the final carrying capacity estimate for the North Zaga Pasture at the 65% and 50% target use levels.

Figure 1. Frost Creek Allotment Carrying Capacity (CC)

Pasture	Current Active Preference AUMs	Estimated CC AUMs @ 50% Target Use Level for Native Grasses	Estimated CC AUMs @ 50% Target Use Level for Crested wheatgrass	Estimated CC AUMs @ 65% Target Use Level for Crested wheatgrass
Jiggs Flat	280	200	n/a	n/a
Riley	320	n/a	353	391
North Zaga	270	n/a	364	404
Corral Canyon	286	n/a	349	400
South Zaga	300	n/a	292	324
Frost Canyon	320	n/a	335	376
Brown	200	n/a	316	360
Subtotal(s)		**200**	**2009**	**2255**
Total(s)	**1976**		**2209[1]**	**2455[1]**

1 – In addition to the total number of Estimated CC AUMs at the 50% and 65% percent Target Use Levels for Crested wheatgrass pastures, these totals also include 200 AUMs for the Jiggs Flat Pasture. The totals reflect the overall proposed increase to the active preference as described in section 9.1.5. (Increases to Active Permitted Use) of the standards and guidelines assessment.

Appendix C - Rangeland Health Evaluation

Rangeland Health Evaluation Summary Worksheet

Part 1. Area of Interest Documentation (Bold items require completion, other information is optional)

State NV **Office** Elko **Management Unit** Frost Creek Allot

Pasture/Watershed Jiggs ID# _____ Major Land Resource Area Elko

Location (description) DY-T-88-05

Legal T 28 ,R 56 ,Sec 4 , SW 1/4, SW 1/4 or Lat ____ ,Long ____ or UTM Coord _____

Size of Evaluation Area _____ **Photo(s) Taken** Yes ___ No ___

Observer(s) Rodgers/Serfustini **Date** 7/7/05

Ecological Site Loamy 8-10" pz Soil Map Unit Name _____

Soil/Site Verification

Rangeland Ecological Site Description and/or Soil Survey
Surface Texture _____
Depth: Very Shallow ☐ (<10") Shallow ☐ (10"-20") Moderate ☐ (20"-40") Deep ☐ (>40")
List diagnostic horizons in profile and depth
1 _____ 3 _____
2 _____ 4 _____

Area of Interest Determination
Surface Texture _____
Depth: Very Shallow ☐ (<10") Shallow ☐ (10"-20") Moderate ☐ (20"-40") Deep ☐ (>40")
List diagnostic horizons in profile and depth
1 _____ 3 _____
2 _____ 4 _____

Parent Material _____ **Slope** 2-3 % Elevation 5800 ft Topographic Position _____ **Aspect** N

Avg Annual Precip _____ **Recent Weather (last 2 years)** Drought ___ Normal ___ Wet ___

Describe wildlife and livestock use and recent disturbances _____

Describe offsite influences on area of interest _____

Part 2. Indicator Rating * This data was summarized on the newer evaluation sheet format. Refer to enclosed Form

		Departure from Ecological Site Description/ Ecological Reference Area(s)				
Attribute	**Indicators**	**Extreme**	**Moderate to Extreme**	**Moderate**	**Slight to Moderate**	**None to Slight**
S,H	1. Rills					X
Comments:						
S,H	2. Water Flow Patterns					X
Comments:						
S,H	3. Pedestals and/or Terracettes				X	
Comments: Mostly frost heaving						
S,H	4. Bare Ground					X
Comments:						
S,H	5. Gullies					X
Comments:						
S	6. Wind-Scoured, Blowouts, and/or Deposition Areas					X
Comments:						

Note: Depleted understory; Good amount (59) of BRTE gross in understory

Part 2. Indicator Rating (continued)

Attribute	Indicators	Departure from Ecological Site Description/ Ecological Reference Area(s)				
		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
H	7. Litter Movement					X
Comments:						
S,H,B	8. Soil Surface Resistance to Erosion		X			
Comments:	good grass cover. BARE concern					
S,H,B	9. Soil Surface Loss or Degradation					X
Comments:	Hoof compaction in Spring when soils are wet					
H	10. Plant Community Composition and Distribution Relative to Infiltration and Runoff					
Comments:						
S,H,B	11. Compaction Layer					
Comments:						
B	12. Functional/Structural Groups					
Comments:						
B	13. Plant Mortality/Decadence					
Comments:						
H,B	14. Litter Amount					
Comments:						
B	15. Annual Production					
Comments:						
B	16. Invasive Plants					
Comments:						
B	17. Reproductive Capability of Perennial Plants					
Comments:						

Part 3. Summary

A. Indicator Summary

Rangeland Health Attributes		Departure from Ecological Site Description/ Ecological Reference Area(s)					
		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight	Σ
S	Soil/Site Stability (Indicators 1-6, 8, 9 &11)						9
H	Hydrologic Function (Indicators 1-5, 7-11 & 14)						11
B	Biotic Integrity (Indicators 8-9 & 11-17)						9

B. Attribute Summary - Check the category that best fits the "preponderance of evidence" for each of the three attributes relative to the distribution of indicator ratings in the preceding Indicator Summary table.

Attribute	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Soil/Site Stability Rationale:					
Hydrologic Function Rationale:					
Biotic Integrity Rationale:					

60

*Note- After further review it was apparent that the rating for indicator number 8 was interpreted incorrectly. The notes taken down on the form and field observations contradict the rating. The rating was recorded as Moderate to Extreme (M-E) and should have been recorded as None to Slight (N-S) for departure from the ecological site description The changes are reflected on the evaluation summary sheet (see last page of data sheet).

Evaluation Sheet (Front)

Aerial Photo: _____

Management Unit: Jiggs (Allotment or pasture) State: NV Office: Elko Range/Ecol. Site Code: Loamy 8-10" pz.

Ecological Site Name: _____ Soil Map Unit/Component Name: _____

Observers: Rodgers & Serfustini Date: 7/7/05

Location (description): D'V-T-88-05

T. 28 R. 56 or _____ N. Lat. Or UTM E _____ m Position by GPS? Y / N

Sec. 4, _____ _____ W. Long. N _____ m UTM Zone___, Datum___

Photos taken? Y / N

Size of evaluation area: _____

Composition (Indicators 10 and 12) based on: __Annual Production, __Cover Produced During Current Year or __Biomass

Soil/site verification:

Range/Ecol. Site Descr., Soil Surv., and/or Ecol. Ref. Area:
Surface texture _____
Depth: very shallow __, shallow __, moderate __, deep __
Type and depth of diagnostic horizons:
1. _____ 3. _____
2. _____ 4. _____
Surf. Efferv.: none __, v. slight __, slight __, strong __, violent __

Evaluation Area:
Surface texture _____
Depth: very shallow __, shallow __, moderate __, deep __
Type and depth of diagnostic horizons:
1. _____ 3. _____
2. _____ 4. _____
Surf. Efferv.: none __, v. slight __, slight __, strong __, violent __

Parent material _____ Slope ____% Elevation _____ft.

Topographic position _____ Aspect _____

Average annual precipitation ____inches

Seasonal distribution _____

Recent weather (last 2 years) (1) drought ____, (2) normal ____, or (3) wet ____.

Wildlife use, livestock use (intensity and season of allotted use), and recent disturbances:

Off-site influences on evaluation area:

Criteria used to select this particular evaluation area as REPRESENTATIVE (specific info. and factors considered; degree of "representativeness")

Other remarks (continue on back if necessary)

Reference: (1) Reference Sheet: _____; Author: _____; Creation Date: _____
or (2) Other (e.g., name and date of ecological site description; locations of ecological reference area(s)) _____

Evaluation Sheet (Back)

Departure from Expected None to Slight Slight to Moderate Moderate Moderate to Extreme Extreme to Total	**Code** N-S S-M M M-E E-T	**Instructions for Evaluation Sheet, Page 2** (1) Assign 17 indicator ratings. If indicator not present, rate None to Slight. (2) In the three grids below, write the indicator number in the appropriate column for each indicator that is applicable to the attribute. (3) Assign overall rating for each attribute based on preponderance of evidence. (4) Justify each attribute rating in writing.

Indicator	Rating	Comments
1. Rills	S H	N-S
2. Water-flow Patterns	S H	N-S
3. Pedestals and/or terracettes	S H	S-M
4. Bare ground _____%	S H	N-S
5. Gullies	S H	N-S
6. Wind-scoured, blowouts, and/or deposition areas	S	N-S
7. Litter movement	S	N-S
8. Soil surface resistance to erosion	S H B	N-S
9. Soil surface loss or degradation	S H B	N-S
10. Plant community composition and distribution relative to infiltration	H	
11. Compaction layer	S H B	
12. Functional/structional groups	B	
13. Plant mortality/decadence	B	
14. Litter amount	H B	
15. Annual production	B	
16. Invasive plants	B	
17. Reproductive capability of perennial plants	B	

Attribute Rating Justification
Soil & Site Stability:

E-T	M-E	M	S-M	N-S
				9
				8
				7
				6
				5
				4
				2
			3	1

S (10 indicators):
Soil & Site Stability Rating: N-S

Attribute Rating Justification
Hydrologic Function:

E-T	M-E	M	S-M	N-S
				9
				8
				5
				4
				2
			3	1

H (10 indicators):
Hydrologic Function Rating: N-S

Attribute Rating Justification
Biotic Integrity:

E-T	M-E	M	S-M	N-S
				9
				8

B (9 indicators):
Biotic Integrity Rating: N-S

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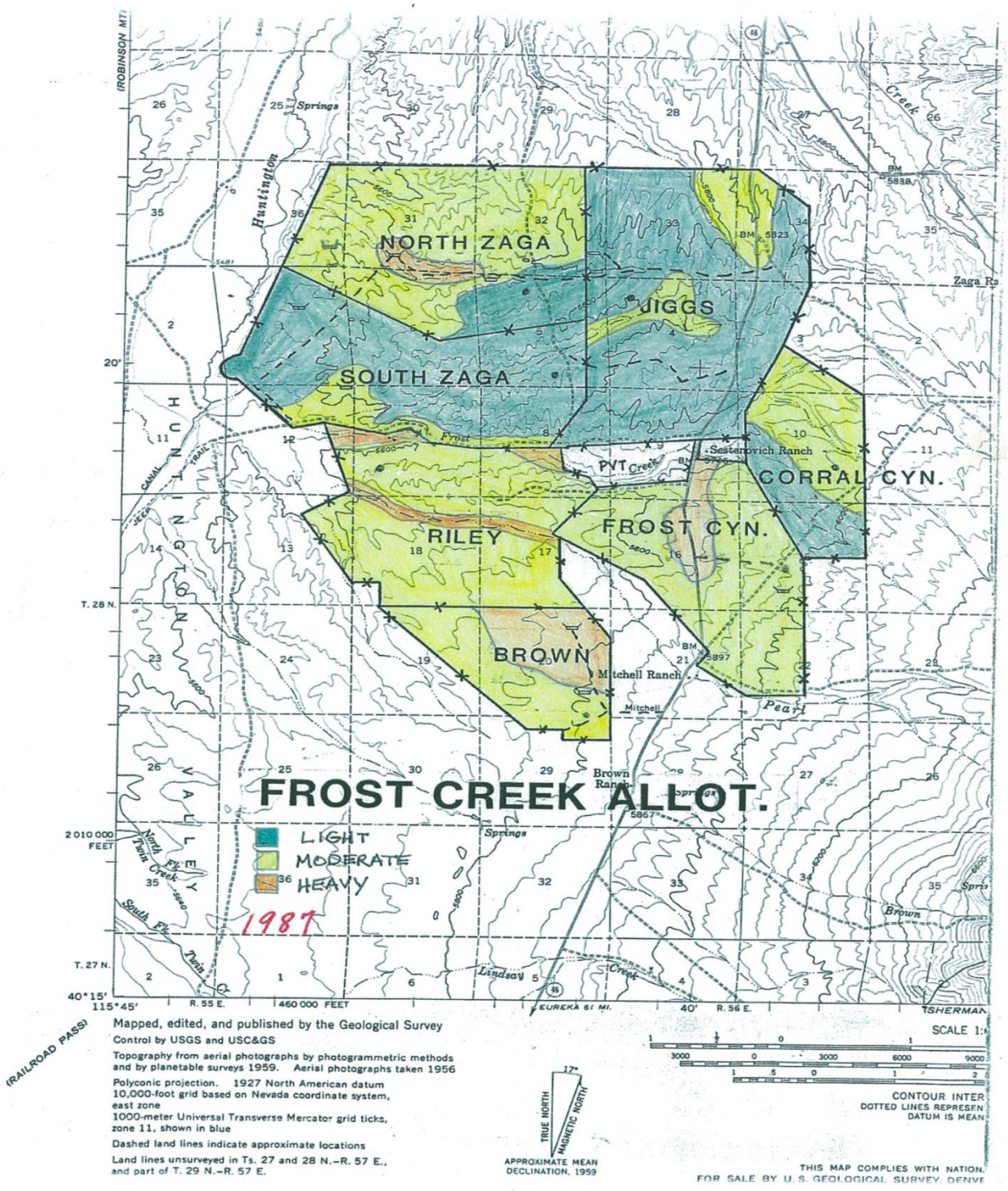
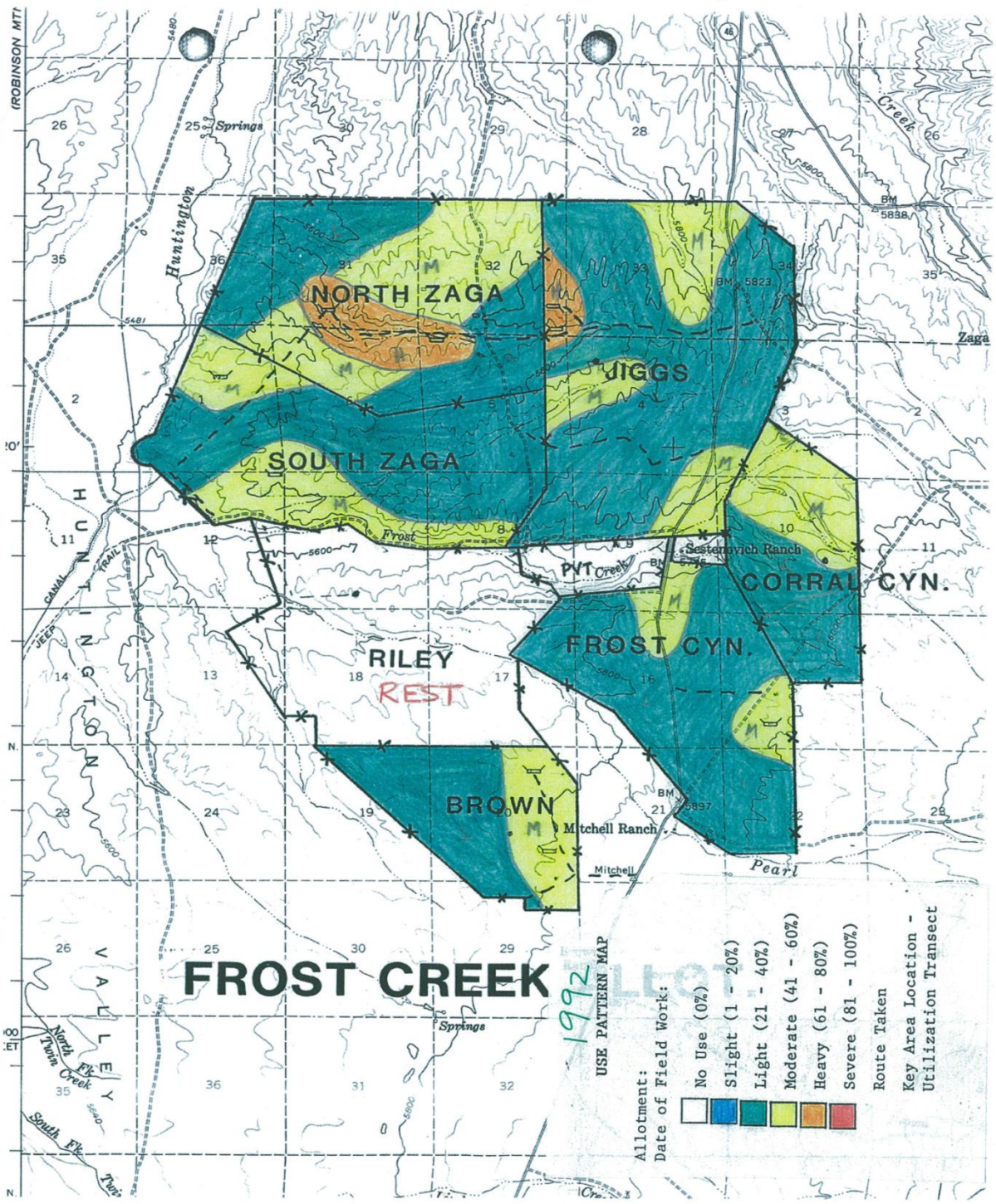
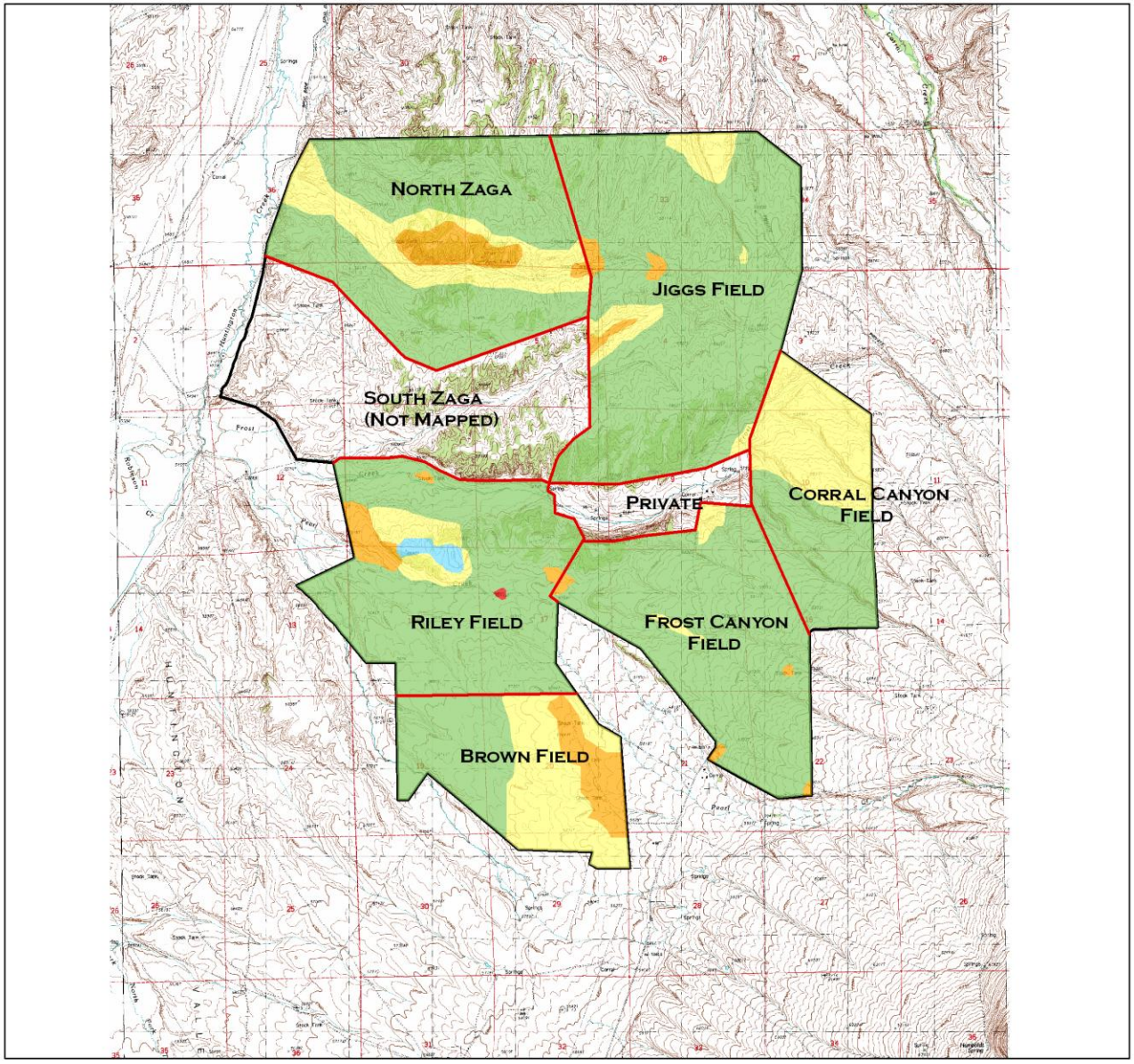
Appendix D - Use Pattern Maps




NORTH ZAGA
JIGGS
SOUTH ZAGA
CORRAL CYN.
FROST CYN.
RILEY
REST
BROWN
FROST CREEK
1992
USE PATTERN MAP
Allotment:
Date of Field Work:
No Use (0%)
Slight (1 - 20%)
Light (21 - 40%)
Moderate (41 - 60%)
Heavy (61 - 80%)
Severe (81 - 100%)
Route Taken
Key Area Location - Utilization Transect
Huntington
Springs
Zaga
Frost
PVT Creek
Sestanovich Ranch
Mitchell Ranch
Mitchell
Pearl
HUNTINGTON VALLEY
North Twin Creek
South Fk. Twin

Frost Creek
Use Pattern Mapping
2008



Legend

- Pasture Fences
- **2008upm1**
- **Utilization**
  - Severe
  - Heavy
  - Moderate
  - Light
  - Slight
  - Allotment Boundary

United States of America
Dept. of the Interior
Bureau of Land Mang.
Wells Field Office, NV
J.C. Robbins 12-10-2008

0 0.5 1 2 Miles

1:45,000

Data published in:
North American Datum 1983 (NAD83)
UTM coordinates, Zone 11, meters

"NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA."

Appendix E – Additional Wildlife Habitat Monitoring Summary

Wildlife Habitat Condition Monitoring Summary

Native Range Area

The monitoring information from 1988 and 2005 indicate that an improvement in the diversity of perennial native herbaceous vegetation is needed to help improve cover and forage diversity for wildlife species.

Key area DY-T-88-05 is largely located in a basin big sagebrush vegetation type within a Loamy Bottom 8-14" Precipitation Zone (P.Z.) ecological site. The Wyoming big sagebrush vegetation type/Loamy 8-10" P.Z. ecological site exists on areas surrounding the ephemeral drainage bottom where the key area transect exists with some mottling of both of the ecological sites on the south side of the transect. The same key area has been used to monitor rangeland conditions and is representative of sagebrush habitat found on approximately 46% of the allotment. Monitoring data collected in 1988 and 2005 are summarized in Table 1.

Habitat monitoring and the plants sampled in 2005 suggest an improvement of habitat condition since 1988. There was a lower composition of shrub cover and a higher composition of perennial grass and forb cover relative to improved ecological status. Shrub foliar cover values have remained unchanged and are within the 8-20% values suggested by the literature for diverse wildlife habitat. Winward, (1991) found that collective shrub foliar cover of 15% or less for the Wyoming big sagebrush vegetation type and 20% or less for the basin big sagebrush vegetation type produced the most diverse habitat values for wildlife on native sagebrush rangelands. Considering other wildlife habitat studies by Gregg (1994) and McAdoo (1989), shrub foliar cover values between 8-15% within the Wyoming big sagebrush vegetation type and 8-20% within the basin big sagebrush vegetation type, coupled with understory perennial herbaceous vegetation that reflects upper mid-seral to late seral ecological status, would help to provide suitable wildlife habitat.

In 2005, sagebrush heights averaged 23.1 inches and absolute herbaceous plant aerial cover was 42.2%. However, the dominant species quantified as composition by percent of cover were big sagebrush (26.7%), rabbitbrush (22.6%), cheatgrass (2%) and Sandberg's bluegrass (42.9%). The dominance of these species, including some that are considered as early seral/"increaser-type" species (94.2% of total plant cover), suggest that the vegetative community lacks in plant species diversity needed for wildlife habitat forage and cover diversity. Past livestock grazing disturbance may be a contributing factor, along with the lack of fire. This is supported by the discussion of ecological sites and plant community dynamics described in the May 2003 Natural Resource Conservation Service manual (U.S. Department of Agriculture - Natural Resources Conservation Service. May 2003) for the Loamy Bottom 8-14" P.Z. site, which reads, in part: *"Where management results in abusive livestock use, basin big sagebrush and rubber rabbitbrush become dominant with increases of povertyweed and bottlebrush squirreltail in the understory. Cheatgrass, scotch thistle, and Russian thistle are species likely to invade this site."* For the Loamy 8-10" P.Z. site, the same manual reads, in part, *"As ecological condition declines, big sagebrush and rabbitbrush become dominant with an increase of Sandberg's bluegrass, bottlebrush squirreltail, phlox and other mat-forming forbs in the understory. Cheatgrass, halogeton, Russian thistle and annual mustards are species likely to invade this site.""*

Ecological status monitoring conducted in 2005 at key area DYT-88-05 shows that this area is in early seral ecological status (See Subsection 7.1.5 above in the standards and guidelines assessment). Livestock utilization within the Jiggs Flat Pasture (Native) between 1987 and 2008 averaged 36% (light).

Habitat management for sage grouse was emphasized in the 1987 Elko Resource Management Plan-Rangeland Program Summary. Sage grouse are considered an "umbrella species" where maintenance or improvement of their habitat also helps to maintain or improve the habitat of many other wildlife species that are dependent ("sagebrush obligates") on sagebrush habitat or otherwise utilize these areas on a yearlong or seasonal basis.

Sage Grouse Nesting Cover Studies- Information obtained from a 1994 sage grouse nesting habitat study in Oregon (Gregg et al) indicated that the following factors would help improve sage grouse nesting success:

1) an average of 8-12% shrub canopy (foliar) cover within the Wyoming big sagebrush vegetation type and 15-20% cover within the basin big sagebrush vegetation type that averages 16-32 inches in height, and,

2) an average of 18% aerial cover of tall genera grasses with height greater than 7 inches.

Sage grouse nesting and brood rearing habitat quality is reduced due to the dominance of Sandberg's bluegrass in the understory in comparison to the ecological site potential where "taller" genera grasses would otherwise occur. While Sandberg's bluegrass helps to provide ground cover, it dries out by mid to late May over most of the allotments at lower elevations on the Elko District in "normal years" and often is completely cured to near ground level by early summer as part of natural phenological processes. Studies in late June 2005, recorded the average droop height of perennial native herbaceous plants bluegrass at 3.1 inches on the key study area. The average droop height for all grasses and forbs, including cheatgrass, was 3.3 inches. Perennial native grass and forb canopy (aerial) cover was 37.8%. This type of lateral cover and canopy cover, provided primarily by Sandberg's bluegrass, does not afford any appreciable cover for sage grouse or any other small ground-dwelling species.

Sage Grouse Early Brood-Rearing Habitat – This habitat is generally in the vicinity of nesting habitat on upland areas with sagebrush as the primary shrub cover. Monitoring efforts have indicated that the diversity of species, including forbs needed for dietary intake, is unsatisfactory in comparison to site potential. Herbaceous canopy cover was satisfactory; however, the latest monitoring in 2005 indicated that Sandberg's bluegrass was the primary species which does not afford any appreciable cover for sage grouse.

Sage Grouse Summer Habitat and Late Brood-Rearing Habitat – This habitat is primarily associated with riparian/meadow areas which are primarily limited to the Pearl Creek drainage. Riparian studies on this stream indicate that a functional riparian zone exists under the early season grazing prescription. This would, in turn, help to provide satisfactory summer/late brood-rearing habitat for sage grouse.

Sage Grouse Winter Habitat - Shrub foliar cover were within the 8-20% values which help provide satisfactory winter habitat for sage grouse on areas that also provide potential nesting habitat when considering sagebrush habitat with a balanced understory. Otherwise, areas with higher shrub foliar cover are likely available on the allotment.

Data collected at the key area was analyzed for mule deer habitat using the BLM's WILDIVE program, which assigns a vegetative diversity index based on percent composition and preference for species present at the key area. This information can be used along with other factors such as water distribution, vegetative production, percent cover, vertical cover, disturbance factors and browse condition to calculate a habitat condition rating for mule deer and antelope.

Although plant diversity was limited and relative composition of grasses and forbs was low, habitat for mule deer intermediate (spring and fall) range was rated as being in "good" condition in 2005. Please refer to Table 1. on the next page for detailed monitoring information and habitat condition ratings for the Jiggs Flat Field.

No analysis of pronghorn habitat was completed on the allotment.

TABLE 1. Frost Creek Allotment – Jiggs Flat Pasture. Wildlife habitat condition rating/monitoring for DW-T-89-05 on the Loamy Bottom 8-14"" P.Z. Ecological Site characterized by the Basin Big Sagebrush vegetation type. As of August 27, 2008

TRANSECT DY-T-88-05 – Jiggs Field DATE MONITORED	BIG GAME HABITAT CONDITION RATING - DEER HABITAT–FORAGE DIVERSITY INDEX*	KEY BROWSE CONDITION** ARTRTR (Basin big sagebrush)			RELATIVE SPECIES COMPOSITION			Absolute % Perennial Native Herbaceous Plant Cover, and Ave. Droop Height in Inches***			SHRUB FOLIAR COVER/ Average Vegetation/ Shrub Height	LIMITING FACTORS/ REMARKS
		Age Class	Form Class	Utilization	Shrubs	Grasses	Forbs	basal	aerial	droop height		
LOAMY BOTTOM 8-14" Precipitation Zone Ecological Site – Basin Big Sagebrush Vegetation Type. Frost Creek Allotment												
June 23, 1988	**"GOOD"**- 0.82 "Fair" forage diversity" for yearlong mule deer use	Unsatisfactory	Satisfactory	No Data	77.5%	18.8%	2.9%	4.25%	No data	No data	17.7% / 21.6 in. – (Average vegetative height)	Plant diversity was limited and relative composition of grasses and forbs was low. Sandberg's bluegrass comprised 79% of the entire relative composition of perennial native grasses.
June 27, 2005	**"GOOD"**- 0.87 "Fair" forage diversity" for mule deer intermediate (spring and fall) range use	Satisfactory	Satisfactory	No Data	49.3%	45.8%	4.8%	15.8%	37.8%	3.3 in.	16%/ 23.1 in – (Average vegetative height with sagebrush to five feet in height)	Herbaceous plant diversity was limited. Regarding the overall (annual and native perennial) grass composition, Sandberg's bluegrass comprised 93.7%, cheatgrass was 4.4% and bottlebrush squirreltail comprised 2% of the sample.

*"Desired Plant Community" objectives will be considered for future collective terrestrial wildlife species habitat/rangelands monitoring in addition to, or lieu of, Big Game (Mule Deer) Habitat Condition Rating. Big game habitat management emphasis has been for mule deer intermediate range for 2005 monitoring.
**For 2005, active leader growth was occurring with form class as sample for utilization from prior growing season.
***Herbaceous plant aerial cover, average herbaceous plant droop height, and average shrub height considered as of October 2000 as part of sage grouse habitat guidelines for Nevada

Crested Wheatgrass Seeding Areas:
No wildlife habitat key areas have been established on crested wheatgrass seeding areas within the allotment.

Basin and Wyoming big sagebrush are present on all seeding areas with an undetermined range of foliar cover percentages. An ocular estimate as of 2002-2007 is 15% or less.

Crested Wheatgrass Utilization:
As indicated below and included in Appendix A, livestock utilization on crested wheatgrass seedings has had a variety of utilization levels from 1987 to 2000.

Riley Pasture: 6% to 56% averaging 38% - four years of rest.
North Zaga: 11% to 63% averaging 40% - three years of rest.
Corral Canyon: 23% to 66% averaging 37%; no rest recorded
South Zaga: 29% to 49% averaging 39% - eight years of rest.
Brown: 2% to 52% averaging 33% - four years of rest.
Frost Canyon: 10% to 62% averaging 28% - four years of rest.

The average height of crested wheatgrass shown in U.S. Forest Service's Fire Effects Information System database is 25 inches. However, heights can vary. If crested wheatgrass residual cover and new growth were to have an average of 25 inches in height, the upper use levels observed of 49% to 66% would result in stubble height of approximately 5.0 to 3.0 inches, respectively, when cattle are removed. The lower use levels observed at 2% to 29% would result in stubble height of approximately 24 to 8.5 inches, respectively, when cattle are removed. The average use of 27% to 39% use ("light use") which has been observed on this allotment, would help to provide cover and forage for wildlife species. The 65% utilization level has been authorized for crested wheatgrass seeding areas within the allotment. At 65% use with an average height of 25 inches, there would be approximately 3.25 inches of stubble height offering cover to wildlife with 10% of current year's seed stalks. At 50% utilization, an average of 5.0 inches of stubble height would remain on crested wheatgrass. This difference in stubble height could provide different values to wildlife for cover and foraging. Re-growth the following spring would likely offset impacts to some wildlife species, however the extent of this mitigation is unknown. Sage grouse and several other special status species would likely benefit from increased cover.

Areas near water sources are likely to have moderate livestock use when the surrounding areas have light use. Moderate livestock use with less forage and cover, could be selected by those species such as burrowing owls that seek more open areas. With 65% utilization, those Special Status Species or prey of predatory birds designated as Special Status Species that need cover taller than three inches to avoid prey species, would have no appreciable hiding cover on the seeding areas. Livestock grazing on dormant crested wheatgrass could otherwise stimulate "green-up" (succulent fall to spring period growth) during the late fall to spring period for those wildlife species, including prey species of predatory Special Status Species, that would seek it for dietary intake. Livestock use during the cool dormant period is considered to have the least impact on vegetative resources. Otherwise, there are species, including Migratory Birds such as horned larks and Special Status Species such as burrowing owls, that could seek the more open cover areas for foraging that result from 65% utilization. Burrowing owls could also seek the more open cover areas for nesting where burrow areas are found. However, improving or maintaining herbaceous cover on crested wheatgrass seeding areas would help

provide cover and forage for the prey species on which this owl depends. The light utilization on average that has occurred from 1987 to 2000 would result in stubble height that provides cover and forage for wildlife including prey species of burrowing owls.

Quotations from the U.S. Forest Service's Fire Effects Information System database regarding management considerations for crested wheatgrass:

- *Light to moderate grazing (up to 70% utilization) invigorates a crested wheatgrass stand and extends its life* (Bleak, A. T.; Plummer, A. Perry. 1954) (Torell, L. Allen; Godgrey, E. Bruce. 1986). [Note that BLM's moderate use criterion is 41-60% and differs from the 70% utilization quoted above from the publication. It is unknown if multiple uses, including residual cover and forage for wildlife, were considered under the 1954 publication.]
- *Heavy grazing of crested wheatgrass stands may speed up the re-invasion of sagebrush or of weeds such as Russian thistle (Salsola kali). Above 88% use, production decreases, plants die, and stand quality suffers* (Bleak, A. T.; Plummer, A. Perry. 1954). [Note that BLM's heavy use criterion is 61-80%. It is unknown if some plants would be subject to use above 88% in order to get an average of the current authorized 65% use. It is also unknown if use above 88% has the greatest negative effects on crested wheatgrass during specific period of phenological growth (e.g. seedripe).]
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As of April 2007, the crested wheatgrass seedings on the Riley and Frost Canyon pastures on the allotment were estimated to have a "moderate to high" population of black-tailed jackrabbits. Jackrabbits were observed and there was a uniform "high" density (up to several hundred per square meter) of older to newer pellet droppings on, at least, the loamy bottom areas on the Riley Field. Jackrabbits consume approximately 0.12 kg (approx. 0.25 lb) air dried native forage per day and eat primarily grasses and forbs in spring and summer, and shrubs in winter. (McAdoo, pers. comm.) Competition between jackrabbits and livestock is highest in spring when they are both selecting for succulence (McAdoo, pers. comm.). Jackrabbits are one of many native wildlife species on the allotment that could contribute to a "low to fair" percentage of forage consumption.

Appendix F - Nevada Department of Wildlife - Wildlife Species List
Pearl to Black Mountain Area

[BLM Note: This list encompasses a broad area that includes the Pearl Creek area to Black Mountain. Black Mountain is approximately 14 miles to the southwest in the Pinon Range. It also includes the Huntington Creek riparian corridor that is primarily private lands to the west of the allotment. (There is an error on the BLM Edition- Surface Management Status for 2002 Ruby Lake 1:100,000-scale topographic map showing much of the Huntington Creek riparian corridor as public lands in the area. This is not the present case as the majority of this same corridor is under private ownership outside of any BLM-managed grazing allotments. Corrections were made on the 2006 edition of the Ruby Lake map.) This a broad species list for a large area where many species do not exist on the Frost Creek Allotment due to site-specific habitat needs versus those habitats provided on the allotment.]

Wildlife Species List

Birds

Order: *Podicipediformes* (Flat-toed Divers)

Family: *Podicipedidae* (Grebes)

Pied-billed Grebe	*Podilymbus podiceps*
Eared Grebe	*Podiceps nigricollis*
Western Grebe	*Aechmophorus occidentalis*
Clark's Grebe	*Aechmophorus clarkii*

Order: *Pelecaniformes* (Four-toed Fisheaters)

Family: *Pelecanidae* (Pelicans)

American White Pelican	*Pelecanus erythrorhynchos*

Family: *Phalacrocoracidae* (Cormorants)

Double-crested Cormorant	*Phalacrocorax auritus*

Order: *Ciconiiformes* (Long-legged Waders)

Family: *Ardeidae* (Bitterns, Herons, Egrets)

American Bittern	*Botaurus lentiginosus*
Least Bittern	*Ixobrychus exilis (L.E.)*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Snowy Egret	*Egretta thula*
Cattle Egret	*Bubulcus ibis*
Green Heron	*Butorides virescens (L.E.)*
Black-crowned Night Heron	*Nycticorax nycticorax*

Family: *Threskiornithidae* (Ibises)

White-faced Ibis	*Plegadis chihi*

Family: *Cathartidae* (New World Vultures)

Turkey Vulture	*Cathartes aura*
California Condor	*Gymnogyps californianus(L.E.)*

Order: *Anseriformes* (Waterfowl)

Family: *Anatidae* (Ducks, Geese, Swans)

Greater White-fronted Goose	*Anser albifrons*
Snow Goose	*Chen caerulescens*
Canada Goose	*Branta canadensis*
Tundra Swan	*Cygnus columbianus*
Trumpeter Swan	*Cygnus buccinator*
Wood Duck	*Aix sponsa*
Gadwall	*Anus strepera*
American Widgeon	*Anus americana*
Mallard	*Anus platyrhynchos*
Blue-winged Teal	*Anus discors*
Cinnamon Teal	*Anus cyanoptera*
Northern Shoveler	*Anus clypeata*
Northern Pintail	*Anus acuta*
Green-winged Teal	*Anus crecca*
Canvasback	*Aythya valisinaria*
Redhead	*Aythya americana*
Ring-necked Duck	*Aythya collaris*
Lesser Scaup	*Aythya affinis*
Bufflehead	*Bucephala albeola*
Common Goldeneye	*Bucephala clangula*
Barrow's Goldeneye	*Bucephala islandica*
Hooded Merganser	*Lophodytes cucullatus*
Common Merganser	*Mergus merganser*
Red-breasted Merganser	*Mergus serrator*
Ruddy Duck	*Oxyura jamaicensis*

Order: *Falconiformes* (Diurnal Flesh Eaters)

Family: *Accipitridae* (Hawks, Eagles, Osprey)

Osprey	*Pandion haliaetus*
Bald Eagle	*Haliaetus leucocephalus*
Northern Harrier	*Circus cyaneus*
Sharp-shinned Hawk	*Accipiter striatus*
Cooper's Hawk	*Accipiter cooperii*
Northern Goshawk	*Accipiter gentilis*
Swainson's Hawk	*Buteo swainsoni*
Red-tailed Hawk	*Buteo jamaicensis*
Ferruginous Hawk	*Buteo regalis*
Rough-legged Hawk	*Buteo lagopus*
Golden Eagle	*Aquila chrysaetos*

Family: *Falconidae* (Falcons)

American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Gyrfalcon	*Falco rusticolus*
Peregrine Falcon	*Falco perigrinus*
Prairie Falcon	*Falco mexicanus*

Order: *Galliformes* (Chicken Relatives)

Family: *Phasianidae* (Grouse, Partridge)

Chukar	*Alectoris chukar*
Gray Partridge	*Perdix perdix*
Greater Sage-Grouse	*Centrocercus urophasianus*
Blue Grouse	*Dendragapus obscurus*
C. Sharp-tailed Grouse	*Tympanuchus phasianellus c. (L.E.)*
Wild Turkey	*Meleagris gallopavo*

Family: *Odontophoridae* (New World Quail)

California Quail	*Callipepla californica*
Mountain Quail	*Oreortyx pictus (L.E.)*

Order: *Gruiformes* (Cranes and Allies)

Family: *Rallidae* (Rails, Coots)

Virginia Rail	*Rallus limicola*
Sora	*Porzana carolina*
Common Moorhen	*Gallinula chloropus*
American Coot	*Fulica americana*

Family: *Gruidae* (Cranes)

Greater Sandhill Crane	*Grus canadansis tabida*
Lesser Sandhill Crane	*Grus canadansis canadensis*

Order: *Charadriiformes* (Wading Birds)

Family: *Charadriidae* (Plovers)

Semi-palmated Plover	*Charadrius semipalmatus*
Killdeer	*Charadrius vociferus*
Mountain Plover	*Charadrius montanus*

Family: *Recurvirostridae* (Avocets)

Black-necked Stilt	*Himantopus mexicanus*
American Avocet	*Recurvirostra americana*

Family: *Scolopacidae* (Sandpipers, Phalaropes)

Greater Yellowlegs	*Tringa melanoleuca*
Lesser Yellowlegs	*Tringa flavipes*
Solitary Sandpiper	*Tringa solitaria*
Willet	*Catoptrophorus semipalmatus*
Spotted Sandpiper	*Actitus macularia*
Long-billed Curlew	*Numenius americanus*
Marbled Godwit	*Limosa fedoa*
Western Sandpiper	*Calidris mauri*
Least Sandpiper	*Calidris minutilla*
Baird's Sandpiper	*Calidris bairdii*
Long-billed Dowitcher	*Limnodromnus scolopaceus*
Common Snipe	*Gallinago gallinago*
Wilson's Phalarope	*Phalaropus tricolor*
Red-necked Phalarope	*Phalaropus lobatus*

Family: *Laridae* (Gulls, Terns)

Ring-billed Gull	*Larus delawarensis*
California Gull	*Larus californicus*
Caspian Tern	*Sterna caspia*
Forster's Tern	*Sterna forsteri*
Black Tern	*Chlidonias niger (L.E.)*

Order: *Columbiformes* (Pigeons and Allies)

Family: *Columbidae* (Doves)

Rock Dove	*Columba livia*
White-winged Dove	*Zenaida asiatica*
Mourning Dove	*Zenaida macroura*

Order: *Cuculiformes* (Cuckoos and Allies)

Family: *Cuculidae* (Cuckoos andRoadrunners)

Yellow-billed Cuckoo	*Coccyzus americanus (L.E.)*

Order: *Strigiformes* (Nocturnal Flesh Eaters)

Family: *Tytonidae* (Barn Owls)

Barn Owl	*Tyto alba*

Family: *Strigidae* (Owls)

Western Screech-Owl	*Otus kennicottii*
Great Horned Owl	*Bubo virginianus*
Snowy Owl	*Nyctea scandiaca*
Burrowing Owl	*Athene cunicularia*
Long-eared Owl	*Asio otus*
Short-eared Owl	*Asio flammeus*
Northern Saw-whet Owl	*Aegolius acadicus*

Order: *Caprimulgiformes* (Night Jars)

Family: *Caprimulgidae* (Goatsuckers)

Common Nighthawk	*Chordeiles minor*
Common Poorwill	*Phalaenoptilus nuttallii*

Order: *Apodiformes* (Small Fast Fliers)

Family: *Trochilidae* (Hummingbirds)

Black-chinned Hummingbird	*Archilochus alexandri*
Calliope Hummingbird	*Stellula calliope*
Broad-tailed Hummingbird	*Selasphorus platycercus*
Rufous Hummingbird	*Selasphorus rufus*

Order: *Coraciiformes* (Cavity Nesters)

Family: *Alcedinidae* (Kingfishers)

Belted Kingfisher	*Ceryle alcyon*

Order: *Piciformes* (Cavity Builders)

Family: *Picidae* (Woodpeckers)

Lewis' Woodpecker	*Melanerpes lewis*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Red-naped Sapsucker	*Sphyrapicus nuchalis*
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Picoides villosus*
Northern Flicker	*Colaptes auratus*

Order: *Passeriformes* (Perching Birds)

Family: *Tyrannidae* (Flycatchers)

Western Wood-Pewee	*Contopus sordidulus*
Willow Flycatcher	*Epidonax traillii*
Hammond's Flycatcher	*Epidonax hammondii*
Gray Flycatcher	*Epidonax wrightii*
Dusky Flycatcher	*Epidonax oberholseri*
Say's Phoebe	*Sayornis saya*
Ash-throated Flycatcher	*Myiarchus cinerascens*
Western Kingbird	*Tyrannus verticalis*
Eastern Kingbird	*Tyrannus tyrannus*

Family: *Laniidae* (Shrikes)

Loggerhead Shrike	*Lanius ludovicianus*
Northern Shrike	*Lanius excubitor*

Family: *Vireonidae* (Vireos)

Plumbeous Vireo	*Vireo plumbeus*

Warbling Vireo	*Vireo gilvus*

Family: *Corvidae* (Jays)

Western Scrub-Jay	*Aphelocoma californica*
Pinyon Jay	*Gymnorhinus cyanocephalus*
Black-billed Magpie	*Pica pica*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*

Family: *Alaudidae* (Larks)

Horned Lark	*Eremophila alpestris*

Family: *Hirundinidae* (Swallows)

Tree Swallow	*Tachycineta bicolor*
Violet-green Swallow	*Tachycineta thalassina*
Bank Swallow	*Riparia riparia*
N. Rough-winged Swallow	*Stelgidopteryx serripennis*
Cliff Swallow	*Petrochelidon pyrrhonota*
Barn Swallow	*Hirundo rustica*

Family: *Paridae* (Chickadees, Titmice)

Black-capped Chickadee	*Poecile atricapillus*
Mountain Chickadee	*Poecile gambeli*
Juniper Titmouse	*Baeolophus griseus*

Family: *Aegithalidae* (Bushtits)

Bushtit	*Psaltriparus minimus*

Family: *Sittidae* (Nuthatches)

Red-breasted Nuthatch	*Sitta canadensis*
White-breasted Nuthatch	*Sitta carolinensis*

Family: *Troglodytidae* (Wrens)

Rock Wren	*Salpinctes obsoletus*
Canyon Wren	*Catherpes mexicanus*
Bewick's Wren	*Thyromanes bewickii*
House Wren	*Troglodytes aedon*
Winter Wren	*Troglodytes troglodytes*
Marsh Wren	*Cistothorus palustris*

Family: *Cinclidae* (Dippers)

American Dipper	*Cinclus mexicanus*

Family: *Regulidae* (Kinglets)

Golden-crowned Kinglet	*Regulus satrapa*
Ruby-crowned Kinglet	*Redulus calendula*

Family: *Sylviidae* (Gnatcatchers)

Blue-gray Gnatcatcher	*Polioptila caerulea*

Family: *Turdidae* (Thrushes)

Mountain Bluebird	*Sialia currucoides*
Townsend's Solitaire	*Myadestes townsendi*
Hermit Thrush	*Catharus guttatus*
American Robin	*Turdus migratorius*
Varied Thrush	*Ixoreus naevius*

Family: *Mimidae* (Thrashers, Mockingbirds)

Northern Mockingbird	*Mimus polyglottos*
Sage Thrasher	*Oreoscoptes montanus*

Family: *Sturnidae* (Starlings)

European Starling	*Sturnus vulgaris*

Family: *Motacillidae* (Pipits)

American Pipit	*Anthus rubescens*

Family: *Bombycillidae* (Waxwings)

Bohemian Waxwing	*Bombycilla garrulus*
Cedar Waxwing	*Bombycilla cedrorum*

Family: *Parulidae* (Wood Warblers)

Orange-crowned Warbler	*Vermivora celata*
Nashville Warbler	*Vermivora ruficapilla*
Virginia's Warbler	*Vermivora virginae*
Yellow Warbler	*Dendroica petechia*
Yellow-rumped Warbler	*Dendroica coronata*
Black-throated Gray Warbler	*Dendroica nigrescens*
Common Yellowthroat	*Geothlypis trichas*
Wilson's Warbler	*Wilsonia pusilla*
Yellow-breasted Chat	*Icteria virens*

Family: *Thraupidae* (Tanagers)

Western Tanager	*Piranga ludoviciana*

Family: *Emberizidae* (Sparrows, Towhees, Juncos)

Green-tailed Towhee	*Pipilo chlorurus*
Spotted Towhee	*Pipilo maculatus*
American Tree Sparrow	*Spizella arborea*
Chipping Sparrow	*Spizella passerina*
Brewer's Sparrow	*Spizella breweri*
Vesper Sparrow	*Pooecetes gramineus*
Lark Sparrow	*Chondestes grammacus*
Black-throated Sparrow	*Amphispiza bileneata*
Sage Sparrow	*Amphispiza belli*
Savannah Sparrow	*Passerculus sandwichensis*
Grasshopper Sparrow	*Ammodramus bairdii*
Fox Sparrow	*Passerella iliaca schistacea*
Song Sparrow	*Melospiza melodia*
Lincoln's Sparrow	*Melospiza lincolnii*
White-throated Sparrow	*Zonotrichia albicollis*
Harris' Sparrow	*Zonotrichia querula*
Gambel'sWhite-crownedSparrow	*Zonotrichia leucophrys gambelii*
Mountain W-crowned Sparrow	*Zonotrichia leucophrys oriantha*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Dark-eyed Junco*(Oregon)*	*Junco hyemalis therburi*
Dark-eyed Junco(*Gray-headed*)	*Junco hyemalis caniceps*
Lapland Longspur	*Calcarius lapponicus*

Family: *Cardinalidae* (Grosbeaks, Buntings)

Black-headed Grosbeak	*Pheucticus melanocephalus*
Blue Grosbeak	*Guiraca caerulea*
Lazuli Bunting	*Passerina amoena*
Indigo Bunting	*Passerina cyanea*

Family: *Icteridae* (Blackbirds, Orioles)

Bobolink	*Dolichonyx oryzivorus*
Red-winged Blackbird	*Agelaius phoeniceus*
Western Meadowlark	*Sturnella neglecta*
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Brewer's Blackbird	*Euphagus cyanocephalus*
Great-tailed Grackle	*Quiscalus mexicanus*
Brown-headed Cowbird	*Molothrus ater*
Bullock's Oriole	*Icterus bullockii*
Scott's Oriole	*Icterus parisorum*

Family: *Fringillidae* (Finches, Grosbeaks)

Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*
Black Rosy-Finch	*Leucosticte atrata*
Cassin's Finch	*Carpodacus cassinii*
House Finch	*Carpodacus mexicanus*
Red Crossbill	*Loxia curvirostra*
Pine Siskin	*Carduelis pinus*
Lesser Goldfinch	*Carduelis psaltria*
American Goldfinch	*Carduelis tristis*
Evening Grosbeak	*Coccothraustes vespertinus*

Family: *Passeridae* (Old World Sparrows)

House Sparrow	*Passer domesticus*

Mammals

Order: *Insectivora* (Insect Eaters)

Family: *Soricidae* (Shrews)

Merriam's Shrew	*Sorex meriammi*
Dusky Shrew	*Sorex monticolus*
Vagrant Shrew	*Sorex vagrans*
Water Shrew	*Sorex palustris*

Order: *Chiroptera* (Bats)

Family: *Vespertilionidae* (Plainnose Bats)

California Myotis	*Myotis californicus*
Western Small-footed Myotis	*Myotis ciliolabrum*
Long-eared Myotis	*Myotis evotis*
Little Brown Bat	*Myotis lucifugus*
Fringed Myotis	*Myotis thysanodes*
Long-legged Myotis	*Myotis volans*
Yuma Myotis	*Myotis yumanensis*
Western Red Bat	*Lasiurus blossvellii*
Hoary Bat	*Lasiurus cinereus*
Silver-haired Bat	*Lasionycteris noctivagans*
Western Pipistrelle	*Pipistrellus hesperus*
Big Brown Bat	*Eptesicus fuscus*
Townsend's Big-eared Bat	*Corynorhinus townsendii*
Spotted Bat	*Euderma maculatum*
Pallid Bat	*Antrozous pallidus*

Family: *Molossidae* (Freetail Bats)

Brazilian Free-tailed Bat	*Tadarida brasiliensis*

Order: *Lagomorpha* (Pikas, Hares, Rabbits)

Family: *Leporidae* (Hares, Rabbits)

Black-tailed Jackrabbit	*Lepus californicus*
Mountain Cottontail	*Sylvilagus nuttalli*
Desert Cottontail	*Sylvilagus audubonii*
Pygmy Rabbit	*Brachylagus idahoensis*

Order: *Rodentia* (Rodents)

Family: *Sciuridae* (Squirrels)

Least Chipmunk	*Tamias minimus*
Uinta Chipmunk	*Tamias umbrinus*
Yellow-bellied Marmot	*Marmota flaviventris*
White-tailed Antelope Squirrel	*Ammospermophilus leucurus*
Townsend's Ground Squirrel	*Spermophilus townsendii*
Belding's Ground Squirrel	*Spermophilus beldingi*
Wyoming Ground Squirrel	*Spermophilus elegans*
Golden-mantled Ground Squirrel	*Spermophilus lateralis*

Family: *Geomyidae* (Gophers)

Botta's Pocket Gopher	*Thomomys bottae*
Northern Pocket Gopher	*Thomomys talpoides*
Townsend's Pocket Gopher	*Thomomys townsendii*

Family: *Heteromyidae* (Kangaroo Rodents)

Little Pocket Mouse	*Perognathus longimembris*
Great Basin Pocket Mouse	*Perognathus parvus*
Dark Kangaroo Mouse	*Microdipodops megacephalus*
Ord Kangaroo Rat	*Dipodomys ordii*
Chisel-toothed Kangaroo Rat	*Dipodomys microps*

Family: *Castoridae* (Beavers)

American Beaver	*Castor canadensis*

Family: *Cricetidae* (Mice, Rats, Voles)

Western Harvest Mouse	*Reithrodontomys megalotis*
Canyon Mouse	*Peromyscus crinitus*
Deer Mouse	*Peromyscus maniculatus*
Pinon Mouse	*Peromyscus truei*
Northern Grasshopper Mouse	*Onychomys leucogaster*
Desert Woodrat	*Neotoma lepida*
Bushy-tailed Woodrat	*Neotoma cinerea*
Mountain Vole	*Microtus montanus*
Long-tailed Vole	*Microtus longicaudus*
Sagebrush Vole	*Lemmiscus curtatus*
Muskrat	*Ondatra zibethica*

Family: *Zapodidae* (Jumping Mice)

Western Jumping Mouse	*Zapus princeps*

Family: *Erethizontidae* (New World Porcupines)

Porcupine	*Erethizon dorsatum*

Order: *Carnivora* (Flesh-Eaters)

Family: *Canidae* (Dogs)

Coyote	*Canis latrans*
Gray Wolf	*Canis lupus (L.E.)*
Common Gray Fox	*Urocyon cinereoargenteus*
Kit Fox	*Vulpes velox*
Red Fox	*Vulpes vulva*

Family: *Ursidae* (Bears)

Black Bear	*Ursus americanus (L.E.)*

Family: *Procyonidae* (Racoons and Allies)

Ringtail	*Bassariscus astutus*
Common Raccoon	*Procyon lotor*

Family: *Mustelidae* (Weasels and Allies)

Short-tailed Weasel	*Mustela erminae*
Long-tailed Weasel	*Mustela frenata*
Mink	*Mustela vison*
Wolverine	*Gulo gulo (L.E.)*
Northern River Otter	*Lutra canadensis*
American Badger	*Taxidea taxus*
Striped Skunk	*Mephitis mephitis*
Western Spotted Skunk	*Spilogale gracilis*

Family: *Felidae* (Cats)

Mountain Lion	*Felix concolor*
Lynx	*Lynx lynx (L.E.)*
Bobcat	*Lynx rufus*

Order: *Artiodactyla* (Hoofed Mammals)

Family: *Cervidae* (Deer)

Rocky Mountain Elk	*Cervus canadensis*
Mule Deer	*Odocoileus hemionus*

Family: *Antilocapridae* (Pronghorn)

Pronghorn	*Antilocapra americana*

Family: *Bovidae* (Bison, Sheep, Goats)

Rocky Mountain Bighorn Sheep	*Ovis canadensis canadensis*

Reptiles

Order: *Squamata* (Lizards, Snakes)

Family: *Iguanidae* (Iguanas and Allies)

Western Fence Lizard	*Sceloporus occidentalis*
Sagebrush Lizard	*Sceloporus graciosus*
Side-blotched Lizard	*Uta stansburiana*
Greater Short-horned Lizard	*Phrynosoma hernadesi*
Desert Horned Lizard	*Phrynosoma platyrhinos*

Family: *Scincidae* (Skinks)

Western Skink	*Eumeces skiltonianus*

Family: *Teiidae* (Whiptails)

Western Whiptail	*Cnemidophorus tigrus*

Family: *Boidae* (Boas, Pythons)

Rubber Boa	*Charina bottae*

Family: *Colubridae* (Solid-toothed Snakes)

Ringneck Snake	*Diadophis punctatus*
Striped Whipsnake	*Masticophis taeniatus*
Great Basin Gopher Snake	*Pituophis cantenifer deserticola*
Common Kingsnake	*Lampropeltis getulus*
Long-nosed Snake	*Rhinocheilus lecontei*
Western Terrestrial Garter	*Thamnophis elegans*
Ground Snake	*Sonora semiannulata*
Night Snake	*Hypsiglena torquata*

Family: *Viperidae* (Vipers)

Great Basin Rattlesnake	*Crotalus viridis lutosus*

Amphibians

Order: *Anura* (Frogs and Toads)

Family: *Pelobatidae* (Spadefoots)

Great Basin Spadefoot Toad	*Scaphiopus intermontanus*

Family: *Ranidae* (True Frogs)

Columbia Spotted Frog	*Rana luteiventris*
Northern Leopard Frog	*Rana pipiens*
Bullfrog	*Rana catesbeiana*

Family: *Bufonidae* (Toads)

Western Toad	*Bufo boreas*

Family: *Hylidae* (Treefrogs)

Pacific Treefrog	*Hyla regilla*

Fish

Order: *Salmoniformes*

Family: *Salmonidae* (Salmon and Trout)

Lahontan Cutthroat	*Oncorynchus clarki henshawi*
Rainbow Trout	*Oncorynchus mykiss*
Brook Trout	*Salvelinus fontinalis*
Brown Trout	*Salmo trutta*

Order: *Scorpaeniformes*

Family: *Cottidae* (Sculpins)

Paiute Sculpin	*Cottus beldingii*

Order: *Cypriniformes*

Family: *Cyprinidae* (Carps and Minnows)

Chiselmouth	*Acrocheilus alutaceus*
Northern Pikeminnow	*Ptychochelus oregonensis*
Longnose Dace	*Rhinicthys cataractae*
Speckled Dace	*Rhinicthys osculus*
Redside Shiner	*Richrdsonius balteatus*

Family: *Catastomidae* (Suckers)

Bridgelip Sucker	*Catastmas columbianus*

L.E. = Locally Extirpated

Note: This list is a combination of wildlife sight record data and our best effort to predict what wildlife species live in this area in all seasons and under optimum habitat conditions.

*With the exception of the European Starling, House Sparrow, and Rock Dove, all birds are protected in Nevada by either the International Migratory Bird Treaty Act, Endangered Species Act or as game species. Several mammal, reptile, amphibian and fish species are also protected as either game, sensitive, threatened, endangered or priority species. For further information on a species status, visit our web site at *NDOW.ORG*.

Updated: 5/2006 - Peter V. Bradley - Nevada Department of Wildlife - Elko, Nevada.

Appendix G - Migratory Birds by Habitat Type*
Nevada Partners in Flight Bird Conservation Plan

Sagebrush	Pinyon/Juniper	Montane Riparian
Obligates**: Sage Grouse Other***: Black Rosy Finch Ferruginous Hawk Gray Flycatcher Loggerhead Shrike Vesper Sparrow Prairie Falcon Sage Sparrow Sage Thrasher Swainson's Hawk Burrowing Owl Calliope Hummingbird Other associated species: Brewer's Sparrow Western Meadowlark Black-throated Sparrow Lark Sparrow Green-tailed Towhee Brewer's Blackbird Horned Lark	Obligates**: Pinyon Jay Gray Vireo Other***: Ferruginous Hawk Gray Flycatcher Juniper Titmouse Mountain Bluebird Western Bluebird Virginia's Warbler Black-throated Gray Warbler Scott's Oriole **Other associated species:** Mountain Quail Scrub Jay Black-billed Magpie Clark's Nutcracker Mountain Chickadee	Obligates: Wilson's Warbler MacGillivray's Warbler Other: Cooper's Hawk Northern Goshawk Calliope Hummingbird Lewis's Woodpecker Red-Naped Sapsucker Orange-crowned Warbler Virginia's Warbler Yellow-breasted Chat **Other Associated Species** Warbling Vireo Broad-tailed Hummingbird Fox Sparrow Blue Grouse

* Species shown may not necessarily inhabit the Frost Creek Allotment due to factors including, but not limited to, site-specific habitat needs for the species under the habitat type shown versus those habitats provided on the allotment.

**"Obligates" are species that are found only in the habitat type described in the section. [Habitat needed during life cycle even though a significant portion of their life cycle is supported by other habitat types]

***"Other " is species that can be found in the habitat type described the Nevada Partners in Flight Bird Conservation Plan.

Appendix H – Frost Creek Allotment Special Status Species

Definitions of Special Status Species

Federally Threatened or Endangered Species: Any species that the U.S. Fish and Wildlife Service has listed as an endangered or threatened species under the Endangered Species Act throughout all or a significant portion of its range.

Proposed Threatened or Endangered Species: Any species that the Fish and Wildlife Service has proposed for listing as a Federally endangered or threatened species under the Endangered Species Act.

Candidate Species: Plant and animal taxa that are under consideration for possible listing as threatened or endangered under the Endangered Species Act.

BLM Sensitive Species: Species 1) that are currently under status review by the U.S. Fish and Wildlife Service, 2) whose numbers are declining so rapidly that Federal listing may become necessary; 3) with typically small and widely dispersed populations; or 4) that inhabit ecological refugia or other specialized or unique habitats.

State of Nevada Listed Species: State-protected animals that have been determined to meet BLM's Manual 6840 policy definition.

The listing of Nevada BLM Special Status Species is based on input provided by BLM, Nevada Department of Wildlife, and U.S. Fish and Wildlife Service in BLM Instruction Memorandum No. NV-2003-097 (July 29, 2003).

The effects of a proposed action on species that are listed or are proposed for listing as threatened or endangered are subject to consultation under section 7 of the ESA.

Nevada BLM policy is to provide State of Nevada Listed Species and Nevada BLM Sensitive Species with the same level of protection as is provided for candidate species in BLM Manual 6840.06C. Per wording for Table IIa. in BLM Instruction Memorandum No. NV-98-013, Nevada protected animals that meet BLM's 6840 policy definition are those species of animals occurring on BLM-managed lands in Nevada that are: (1) 'protected" under authority of Nevada Administrative Codes 501.100 - 503.104; (2) have been determined to meet BLM's policy definition of "listing by a State in a category implying potential endangerment or extinction," and (3) are not already included as a federally listed, proposed, or candidate species.

Frost Creek Allotment Special Status Species – Species Potentially Occurring on the Allotment on a Seasonal or Yearlong Basis.

COMMON NAME	SCIENTIFIC NAME
Federally-Listed Endangered Species	
(None)	(None)
Federally-Listed Threatened Species	
(None)	(None)
Federally-Listed Proposed Threatened or Endangered Species	
(None)	(None)
Federally-Listed Candidate Species	
(Yellow-billed cuckoo)*	*(Coccyzus ameriacanus occidentalis)*
Nevada BLM Sensitive Species	
Birds	
Bald eagle	*Haliaeetus leucocephalus*
Golden Eagle	*Aquila chrysaetos*
Burrowing Owl	*Athene cunicularia*
Ferruginous Hawk	*Buteo regalis*
Swainson's Hawk	*Buteo swainsoni*
Greater Sage Grouse	*Centrocercus urophasianus*
Loggerhead shrike	*Lanius ludovicianus*
Juniper Titmouse	*Baeolophus griseus*
Vesper sparrow	*Poocetes gramineus*
Short-eared owl	*Asio flammeus*
Prairie falcon	*Falco mexicanus*
Pinyon jay	*Gymnorhinus cyanocephalus*
Black-rosy finch	*Leucosticte atrata*
Nevada BLM Sensitive Species	
Mammals	
Pygmy rabbit	*Brachylagus idahoensis*
Small-footed myotis	*Myotis ciliolabrum*
Long-eared myotis	*Myotis evotis*
Long-legged myotis	*Myotis volans*

***As indicated above in this document, there have been no known site records for the California condor (endangered species) or the yellow-billed cuckoo (candidate species) on the BLM Elko District.**

Narrative for the Special Status Species in Table Shown Above

Federally-Listed Candidate species - The U. S. Fish & Wildlife Service has identified that the yellow-billed cuckoo (a candidate species) may occur within the Frost Creek Allotment (March 9, 2006, File No. 1-5-06-SP-093.) The Nevada Department of

Wildlife's (NDOW) 2006 Wildlife Species List for the allotment includes the endangered California condor (*Gymnogyps californianus*). However, this same list shows these condor and cuckoo species as "locally extirpated." In addition, yellow-billed cuckoos are riparian obligates, and there is no willow cover needed as a habitat component for foraging areas and cover on public lands within the Frost Creek Allotment. There are no known specific habitat areas such as roosting, nesting or foraging sites within the allotment. The BLM has not been made aware of any documented observations or site records in Elko County by any agency or academia personnel, or the general public.

Nevada BLM Sensitive Species

Nevada BLM Sensitive Avian Species:
The area provides habitat for other avian Nevada BLM Sensitive Species on a seasonal or yearlong basis including loggerhead shrike, burrowing owls, golden eagles, Swainson's hawks, ferruginous hawks, vesper sparrows, short-eared owls, prairie falcons, black-rosy finches, pinyon jay and juniper titmouse.

Greater Sage Grouse:
The allotment is within the South Fork Sage Grouse Population Management Unit (PMU) in Northeastern Nevada considered under the Elko Strategy by the Northeastern Nevada Stewardship Group Inc. (NNSG). The greater sage grouse was petitioned for listing as threatened or endangered under the Endangered Species Act of 1973 around one year prior to January 12, 2005. On January 12, 2005, the U.S. Fish and Wildlife Service announced a finding in the Federal Register indicating that, "…listing is not warranted." The Greater sage grouse has been petitioned again for listing as threatened or endangered with a finding pending.

One male sage grouse was observed displaying in breeding plumage on the allotment in the spring of 2002. Several additional unsuccessful efforts were made in 2006 by Nevada Department of Wildlife personnel to re-locate this site to confirm it as a lek (breeding display site) for validation as an "active" lek compared to a "historic" or "inactive" lek. BLM will continue to consider the site as a lek area unless fully determined otherwise. Two sage grouse leks have been documented on Forest Service-administered lands within approximately 2.7 miles of the allotment. A trend lek, that has averaged 43 males in attendance between 1999 and 2005, is located on a BLM-administered allotment within a crested wheatgrass seeding approximately 1.8 miles to the northwest of the Frost Creek allotment boundary. The lek areas form "core areas" for associated nesting, brood-rearing and fall/winter habitat areas. Otherwise, there could be sage grouse movements into the area from other areas relatively far away as individual or groups of grouse seek seasonal use areas.

All portions of the Frost Creek Allotment potentially provide sage grouse habitat. Use might be relatively limited within juniper woodlands; however, it has been observed on the BLM Elko District on sagebrush vegetation types interspersed within juniper stands. "Late" brood-rearing habitat is limited as this habitat is primarily associated with riparian and meadow areas such as Pearl Creek which are inherently limited on the allotment.

However, brood movements could occur from the uplands on the allotment to adjoining private lands with late brood-rearing habitat features such as cultivated fields, and riparian and meadow areas.

No monitoring has been completed to quantify shrub cover on areas previously seeded with crested wheatgrass. Wyoming and basin big sagebrush is present on these seedings within the allotment with various foliar cover values.

Shrub cover is vital as a forage and cover component for sage grouse. Sage grouse conservation planning efforts are currently underway for the Elko District. Evaluation of habitat values and the possibilities to improve them would be considered on crested wheatgrass seeding areas such as those on the allotment through this conservation effort. Considerations for maintaining the seeding with structural diversity comprised of shrub species present on the allotment include 15%-20% shrub foliar cover on the basin big sagebrush vegetation type and 8-15% cover on the Wyoming big sagebrush vegetation type on both native and seeding areas. (Gregg et al, McAdoo, Winward) This consideration would include shrub cover needed for sage grouse seasonal use areas including nesting, summer/brood-rearing, and winter habitat; as well as habitat for other non-game and game species including big game.

Loggerhead shrike – Potential nesting habitat is provided on the allotment primarily by basin and Wyoming big sagebrush. Foraging habitat is provided on sagebrush-grass areas with variable canopy cover of brush species. Foraging habitat is provided on sagebrush-grass areas with variable canopy cover of brush species.

Burrowing owls - This species could occur on the allotment. Abandoned mammal burrows, such as those created by badgers, help to provide nesting habitat. This species tends to use disturbed or open sites with minimal vegetation for nesting and loafing, such as recent burned areas or areas near troughs, corrals, or livestock mineral licks where open terrain exists. This may be due to the lack of vegetation at these sites that allows increased visibility from the burrow entrance. Improving or maintaining range conditions and riparian areas would improve conditions for the prey species on which this owl depends.

Bald eagles - The bald eagle is a migrant and potential winter resident on the allotment. Foraging areas on uplands, irrigated lands and riparian areas within suitable winter habitat is widely dispersed over tens of thousands of acres on uplands, irrigated lands and riparian areas throughout the Elko District. This has been documented during formal surveys completed through coordination by BLM and the Nevada Department of Wildlife. Areas that provide intact habitat with shrub cover for prey species and adjoining areas with open water foraging areas increase the suitability of use of habitat on the area. There are no known specific habitat areas such as roosting, nesting or open water foraging sites within the allotment.

Golden eagles – The allotment provides foraging habitat where prey species are primarily small mammals. As of April 2007, the allotment is estimated to have a

"moderate to high" population of black-tailed jackrabbits. Jackrabbits were observed and there is a uniform "high" density (up to several hundred per square meter) of older to newer pellet droppings on, at least, the loamy bottom areas on the Riley Field. The remains of several jackrabbits were observed at the base of wood fence posts on a fence that divide the Riley Field from the Frost Canyon Field, suggesting utilization by raptors.

Swainson's hawks – Narrowleaf cottonwood and quaking aspen stands on riparian corridors on private lands to the east and northeast provide primary potential nesting habitat. Sagebrush/grass areas on the allotment provide foraging habitat during the summer period, and during migration or seasonal movement events.

Ferruginous hawks – In Nevada, this species prefers to nest in scattered juniper woodlands that are found on the edge of salt desert shrub or sagebrush vegetation types overlooking broad valleys. They could also nest on the top of "tall" sagebrush/other shrubs, rock-out-crops, manmade structures or on deciduous trees such as quaking aspen or cottonwoods. Tall sagebrush/other shrubs could be defined as shrubs existing at about six feet in height or higher out of the reach of potential ground-dwelling predators such as coyotes. Shrubs at this height are very limited on the allotment. Relative to the allotment, nesting could occur on juniper trees or on the ground. Otherwise, the allotment provides foraging habitat for ferruginous hawks associated with potential nest sites in juniper cover, and during migration or seasonal movement events. Documented nest sites are over three miles to the northwest and daily foraging efforts from these sites to the allotment are highly unlikely. Maintenance or improvement of habitat for prey species such as rodents or rabbits would help to provide foraging habitat for ferruginous hawks. Black-tailed jackrabbits provide a forage base as mentioned above for golden eagles.

Vesper sparrows – This species is a ground-nester. Relative to the allotment, it is associated with sagebrush grasslands. Studies (McAdoo) in Nevada on crested wheatgrass seedings imply that this species has a shrub requirement. Maintaining 8% to 15% shrub foliar cover would help to improve habitat for this species.

Short-eared owls -- The allotment provides habitat for this ground-nesting species. This species has been observed foraging on crested wheatgrass seedings with a sagebrush component on the Elko District. Nests with young have also been documented on mine sites under consideration for reclamation with no appreciable perennial vegetation.

Prairie falcons - The allotment provides foraging habitat for this species where prey species are primarily small mammals. Black-tailed jackrabbits provide a forage base as mentioned above for golden eagles.

Black-rosy finches – The allotment provides suitable winter habitat on sagebrush grasslands. Although this species is not considered an obligate or priority species for management in juniper woodlands, Utah juniper could provide additional thermal cover on sagebrush grassland edge areas during extreme winter conditions.

Pinyon jay – Juniper woodlands provide habitat for pinyon jays. This species was observed on the allotment on April 17, 2007.

Juniper Titmouse – The allotment provides suitable habitat on juniper woodlands sites.

BLM Sensitive Species - Rabbits

Pygmy rabbits - Pygmy rabbits are a BLM Sensitive Species petitioned for listing as threatened or endangered under the Endangered Species Act of 1973. On May 20, 2005, the U.S. Fish and Wildlife Service announced a 90-Day Finding in the Federal Register indicating that, "… the petition does not provide substantial information indicating that listing the pygmy rabbit may be warranted." The Finding does not downplay the need to conserve, enhance or protect pygmy rabbit habitat. Pygmy rabbits are found in a variety of vegetation types that include big sagebrush that are suitable for creating their burrow system. No known formal surveys have been completed on the Frost Creek Allotment. Pygmy rabbits have been observed on a BLM-administered allotment to the west. The site was a stand of basin big sagebrush within an ephemeral drainage surrounded by a crested wheatgrass seeding – this scenario is present on the Frost Creek Allotment on seeded and native rangeland areas. The presence of ephemeral and perennial drainages, with big sagebrush as a shrub component, increases the likelihood of pygmy rabbit occurrence on the allotment.

BLM Sensitive Species - Bats

The allotment provides roost sites associated with juniper woodlands. There are no known caves or mine shafts or adits on the allotment. Foraging areas are provided on the uplands on the allotment where use could occur in concert with use on irrigated hay meadows/riparian corridors on adjoining private lands and riparian areas on public lands. Improvement or maintenance of upland range conditions and riparian habitat on Frost and Pearl creeks would improve foraging habitat conditions for these species as a variety of insects utilized as forage species are associated with sagebrush, juniper and riparian habitats. Manmade water sources provide habitat for insects and, in turn, could provide foraging habitat and water sources for bats within the allotment.

Small-footed myotis (*Myotis ciliolabrum*). This species could occur on the allotment. This species has been observed in the Ruby Mountains east of the allotment and in a variety of habitats in eastern Nevada, including springs, canyons, coniferous forests (including juniper), and deciduous forests. Roosting occurs primarily in caves or mine shafts or adits.

Long-eared myotis (*Myotis evotis*). This species is relatively common throughout northeastern Nevada and could occur on the allotment. This species is often associated with mid-elevation pinyon pine and Utah juniper woodlands and is dependent upon natural springs within these woodland types as water sources. It has also been reported to be found within a variety of other habitats. Manmade water sources could provide habitat for insects and, in turn, provide foraging habitat within the allotment.

Long-legged myotis (*Myotis volans*). This species uses a variety of sites for roosting, including trees. They could also roost in any rock crevices that occur on the allotment.

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